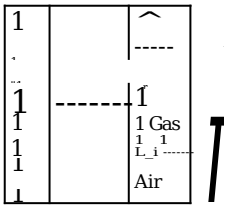
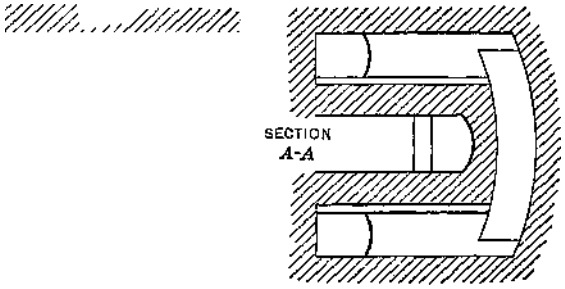
and the size of the turbulent eddy is considerably increased. If a second stream of water be directed so that it impinges upon the first stream just before the first stream impinges on the plafce the condition of the formation of the flames in the furnace will be approximated. The main difference between the action of the two streams of water and that of the streams of air and gas forming the flame will result from the fact that as the reaction of combustion takes place there is a great increase of temperature which





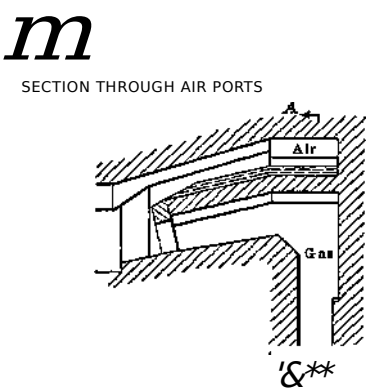


FIG. 146. — Arrangement of Ports on Many American Furnaces.

Low air velocity and high gas velocity.

makes the volume of the flame approximately double that of the reacting gases.

A study of the effect of the velocities of the two streams upon their mixing will reveal many interesting facts, particularly if the

streams are colored so as to supply a contrast while they remain distinct and a third color by their complete mixture. The degree of the mixing at various points will be revealed by the various tints formed as one or the other color predominates.

The function of the ports is to bring the combustible and the